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# Literature review of preschool and kindergarten screening devices

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A LITERATURE REVIEW OF PRESCHOOL AND  
KINDERGARTEN SCREENING DEVICES

by

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Milwaukee, Wisconsin

A RESEARCH PAPER  
SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF  
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This research paper has been  
approved for the Graduate Committee  
of Cardinal Stritch College by

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This paper is dedicated to my late Uncle Edward Stankus, who always supported the quest for higher education.

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## CHAPTER I

### INTRODUCTION

Most definitions of learning disabilities describe a learning disabled child as having a two year or more lag between mental capacity and academic achievement. These definitions imply that a child has to experience academic difficulties before he can be diagnosed as learning disabled.

Since educators, on the other hand, prefer to identify children before they experience difficulty in academic areas, screening devices have been developed that can predict which children might experience difficulty in school. These devices were developed for screening children at the pre-school and kindergarten level. Since the academic areas are not measured, these tests measure growth in motor, cognitive, linguistic, and perceptual abilities.<sup>1</sup> Follow-up studies were then conducted to determine how accurately non-academic measures could predict academic difficulties.

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<sup>1</sup>Samuel A. Kirk, Ph.D., and John Elkins, Ph.D., "Identifying Developmental Discrepancies at the Preschool Level," Journal of Learning Disabilities 8 (August-September 1975):18.



This study examined various screening devices and their follow-up studies.

### Purpose and Limitations

The purpose of this study was to review the literature concerning screening devices that have been developed for use with children at the preschool and kindergarten level. The study was conducted to ascertain which devices have been reviewed in recent journals and are therefore available for examination by those who might wish to use them. Also each instrument included in this study was examined according to the following two criteria:

1. Was the screening device predictive of potential learning problems?
2. Did the device specify the types of tasks that would be the most difficult for the child?<sup>1</sup>

A device was examined then not only on the basis of its predictability but also according to whether or not the device could give specific information for planning an educational program for the child.

This study was limited to descriptions of screening devices which included follow-up studies and to journal articles available at Cardinal Stritch Library published between January 1972 and June 1976.

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<sup>1</sup>Barbara K. Keogh and Laurence D. Becker, "Early Detection of Learning Problems: Questions, Cautions, and Guidelines," Exceptional Children 40 (September 1973): 8-9.

### Definition of Terms

Each individual test discussed in this study was placed into one of four main categories. The following is a general description of each category.

Prenatal and Developmental Screening Devices--Inventories, that evaluate the physical growth and developmental pattern of the child.

Teacher Rating Scales--An assessment of the child's strengths and weaknesses based upon the teacher's daily observation of his characteristic behaviors.<sup>1</sup>

Standardized Tests--Tests which specify the procedures for administration, scoring, and interpretation of scores and for which norms or averages for different age levels have been predetermined.<sup>2</sup>

Test Batteries--A group of tests or parts of tests administered together which may or may not have been standardized on the same subjects.<sup>3</sup>

Children who have experienced problems in school have been given various labels in the various studies examined. In order to avoid confusion, the following definitions were applied to the labels.

High Risk--Those children who after being exposed to specific academic subjects would be expected to achieve at a level significantly below normal achievement for their

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<sup>1</sup>Anna Mendelson and Ruth Atlas, "Early Childhood Assessment: Paper and Pencil for Whom?" Childhood Education 49 (April 1973):360.

<sup>2</sup>William A. Mehrens and Irvin J. Lehman, Standardized Tests in Education (New York: Holt, Rinehart and Winston, 1969), p. 6.

<sup>3</sup>Ibid., p. 300.

chronological age. This label has been applied to both the learning disabled and mentally retarded.

Significant Lag--A lag of two years or more below what would be expected for a certain chronological age or grade level.

Learning Disabled--A child who exhibits a significant lag between mental capacity and academic achievement. Also labeled as:

1. Educationally Handicapped
2. Perceptually Handicapped
3. Minimally Brain Damaged
4. Developmentally Disabled

Educationally Retarded--A child who exhibits a significant lag between academic achievement and chronological age but whose academic achievement is not deviant from his tested lowered mental capacity. Also labeled as:

Educationally Mentally Retarded

Mental Capacity--The child's potential for achievement as determined by various tests of mental ability.

#### Summary

This study was conducted to review the literature between January 1972 and June 1976, to determine which devices developed for preschool and kindergarten age children are predictive of high risk children and can give specific information concerning an educational plan for the child. The study included a detailed description of various instruments, a discussion of each instrument according to the

criteria stated in the purpose of the paper, and comparison of all the instruments that met both criteria.

## CHAPTER II

### REVIEW OF LITERATURE

#### Introduction

This section of the study consisted of detailed descriptions of the various testing devices found in the literature. The devices were divided into the following four main categories:

1. Inventories of Prenatal and Developmental Abnormalities
2. Teacher Rating Scales
3. Standardized Tests
4. Test Batteries

Some of the tests met the criterial of more than one category. When this occurred, the test was categorized according to the stated purpose of the test. Therefore, a test that was a developmental standardized battery would be placed in the Prenatal and Developmental category, if the purpose of the test was to determine developmental lags. The same test would be placed under Test Batteries only if the author stated that his purpose was to develop a test battery with the type of battery appearing to be a secondary concern.

Each device within the four main categories was described in terms of test name, author, purpose, test format, description of follow-up and critique. The test descriptions were presented in outline form to facilitate reading.

### Inventories of Prenatal and Developmental Abnormalities

Test Name: Revised Learning Problems Index

Author: Mary S. Hoffmann, Bobbie L. Wilborn and  
Don Smith

Purpose: To assist parents and physicians in identifying educationally high risk children as young as two years old.<sup>1</sup>

Test Format: A checklist of perinatal and developmental abnormalities using the following format:

#### Perinatal History

Prematurity  
Prolonged Labor  
Difficult Delivery  
Cyanosis  
Blood Incompatibility  
Adoption  
Problems During Pregnancy  
Low Birth Weight

#### History of Developmental Abnormalities

Creeping (late or abnormal)  
Walking (late)  
Tip-toe Walking (late or abnormal)

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<sup>1</sup>Mary S. Hoffman, "Early Indication of Learning Problems," Academic Therapy 7 (Fall 1971):33.

Speech (late or abnormal)  
Ambidexterity (after age or seven years)

Scoring: One point for each abnormality.<sup>1</sup>

Follow-up: A study was conducted to verify an earlier study by Mary S. Hoffman which concluded that a high percentage of learning disabled children manifested a greater amount of perinatal and/or developmental abnormalities when compared to children with satisfactory school performance.<sup>2</sup>

Instead of comparing children performing satisfactorily in school with those who did not, this study compiled the histories of 432 children, ages four to nineteen, who had already been identified as being learning disabled. All of the children had been referred to the Pupil Appraisal Center of North Texas State University for special educational planning. When their histories were examined, seventy-seven percent of the children manifested one or more of the abnormalities described in Mary Hoffman's original index. The original index was condensed to the one found in the test format since those abnormalities appeared to have the greatest effect on later learning.<sup>3</sup>

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<sup>1</sup>Bobbie Wilborn and Don A. Smith, "Early Identification of Children with Learning Problems," Academic Therapy 9 (Spring 1974):369.

<sup>2</sup>Hoffman, "Early Indication of Learning Problems," p. 33.

<sup>3</sup>Wilborn, "Early Identification of Children with Learning Problems," pp. 365-368.

Critique: This index does appear to have some predictive value. Also the administration of the index is relatively simple since the information can be obtained by either interviewing the parents or by reviewing the child's medical history. However, there has been no attempt to study the relationship between an abnormality or group of abnormalities and a specific disability. Further research to determine if such a relationship does exist could make this index not only predictive but also useful in the educational programming of the child.

Test Name: Not given

Author: Paul Satz and Janet Friel

Purpose: To predict reading and writing disabilities in grades one and two by testing kindergarten children for developmental and neuropsychological lags.<sup>1</sup>

Test Format: The test is individually administered to kindergarten children. It consists of twenty-two variables described in detail elsewhere.<sup>2</sup> The variables consist of:

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<sup>1</sup>Paul Satz, Ph.D. and Janet Friel, M.S., "Some Predictive Antecedents of Specific Learning Disability: A Preliminary One Year Follow-up," quoted in Paul Satz and J. Ross, eds., The Disabled Learner: Early Detection and Intervention (Rotterdam: University Press, 1973), p. 83.

<sup>2</sup>Ibid., pp. 83-86.



1. Day of Testing (DT)
2. Age (In months)
3. Handedness (Hand)
4. Finger Tapping Difference (FTD)
5. Finger Tapping Total (FTT)
6. Peabody Picture Vocabulary Test, IQ score (PPVT)
7. Recognition-Discrimination Test (R-D)
8. Embedded Figures (EF)
9. Verbal Fluency (VF)
10. Developmental Test of Visual-Motor Integration (Beery)
11. WISC Similarities (Sim)
12. Alphabet Recitation (Alph)
13. Right-Left Discrimination (R-D)
14. Finger Localization Test (FL)
15. Dichotic Listening Test-Right Channel Recall (DLRC)
16. Dichotic Listening Test-Left Channel Recall (DLLC)
17. Dichotic Listening Test-Ear Asymmetry (DLEA)
18. Dichotic Listening Test-Total Recall (DLT)
19. Auditory-Discrimination Test (A-D)
20. Auditory-Visual Integration Task (A-V)
21. Behavioral Checklist (BCL)
22. Socio-economic Status (S-E)

Scoring: Each test is scored according to its own criteria.<sup>1</sup>

Follow-up: At the end of grade one 473 children, who were tested on the above variables in kindergarten, were classified by their teachers as High Risk (reading below primer level N=73) and Low Risk (reading at or above primer level N=400). These groups were further broken down to Severe High Risk (reading at pre-readiness to readiness), Mild High Risk (reading at pre-primer level), Average Low Risk (reading at primer to first reader level),

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<sup>1</sup>Paul Satz, Ph.D. and Janet Friel, M.S., "Some Predictive Antecedents of Specific Learning Disability: A Preliminary Two Year Follow-Up," Journal of Learning Disabilities 7 (August-September 1974):438-439.

and Superior Low Risk (reading at above first reader level). The subtest scores of each group were then examined. The test accurately predicted 100 percent of the most severely disabled readers and 95.1 percent of the most superior readers. The greatest percentage of predictive error was in predicting the mildly disabled in the High Risk group and the average in the Low Risk group. The subtests that were the most predictive were:

1. Finger Localization
2. Recognition-Discrimination
3. Date of Testing
4. Alphabet Recitation

It was noted that subtests 1, 2, and 4 all involved some aspect of perceptual-motor integration.<sup>1</sup>

Critique: Parts of this rather long and complicated test appear to be highly predictive of a severe reading disability. By analyzing the results in terms of the processes involved, the authors also gave some insight as to what aspects of development may have the greatest importance in the acquisition of reading skills. While the entire battery need not be given, parts of it seem to be both predictive and helpful in educational planning.

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<sup>1</sup>Ibid., pp. 439-443.

## Teacher Rating Scales

Test Name: Not given

Author: Mary Lu Cowgill, Seymore Friedman, and  
Rose Shapiro

Purpose: To determine if learning disabled children can be detected from behaviors written on kindergarten reports.<sup>1</sup>

Test Format: The following list of traits was devised on the basis of their frequency of mention in teachers' reports and meaningfulness in terms of prior research.

### Maturity

1. Works carefully
2. Participates actively in program
3. Takes care of belongings
4. Helps teacher and/or others
5. Finishes tasks
6. Can run a game or activity
7. Tries hard
8. Cooperates, conforms, adapts

### Immaturity

9. Sucks thumb
10. Cries easily
11. Will not care for belongings
12. Whiney, complaining or demanding
13. Is tired in school
14. Gives up easily
15. Timid, shy
16. Does not participate
17. Looks or acts younger than age
18. Bewildered, confused

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<sup>1</sup>Mary Lu Cowgill, M.A., Seymore Friedman, Ph.D., and Rose Shapiro, M.A., "Predicting Learning Disabilities From Kindergarten Reports," Journal of Learning Disabilities 6 (November 1973):578.

Poor Attention Span

19. Cannot follow directions (due to inability to pay attention)
20. Cannot sit still
21. Does not finish work
22. Hurries through work
23. Cannot listen

Impulsive

24. Talks constantly
25. Temper tantrums
26. Hits
27. Cannot resist touching things
28. Flits, darts, jumps from one thing to another
29. Fools around
30. Distracted by others

Poor Social and Emotional Adjustment

31. Teases
32. Does not make friends
33. Will not contribute to discussion
34. Does not want any attention
35. Wants too much attention
36. Clowns, silly
37. Tense, anxious, fearful
38. Will not stand up for rights
39. Very sensitive
40. Perfectionist, very critical

Poor Motor Control

41. Awkward, clumsy, uncoordinated
42. Needs help dressing
43. Difficulty cutting with scissors
44. Sloppy, messy art work
45. Poor art representation
46. Cannot do work because of poor motor coordination

Poor Speech and Language

47. Doesn't use sentences
48. Small vocabulary
49. Veryslow or very rapid speech
50. Very soft or very loud speech
51. Sound substitutions
52. Mush, garbled, inarticulate speech
53. Cannot do work due to inability to understand and/or remember words or verbal instructions

Scoring: First each specific trait is marked as being either present or absent in the child's record. Then each child is rated on a one to four point scale as to general behavior.

Follow-up: The kindergarten reports of thirty-seven boys who were diagnosed as perceptually handicapped were compared to same number of boys who were considered normal. The IQ of the entire group fell between 100 and 130.

The examination revealed that the perceptually handicapped group had a lower rating than the normal group in maturity and a higher rating in poor attention span, impulsivity, poor motor control, and poor speech and language. The specific traits mentioned most often in the kindergarten reports of the perceptually handicapped group were: difficulty paying attention; difficulty in comprehending and/or remembering verbal directions; poor motor control; and difficulty with art projects because of poor art representation, messy work, and inability to use scissors. The groups did not differ in social and emotional development.<sup>1</sup>

Critique: This study supported other research that evaluated the ability of teachers to screen potential learning disabled children by observation of their normal

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<sup>1</sup>Ibid., pp. 580-581.

classroom behavior. One such study attempted to demonstrate that teachers could distinguish the learning disabled from the educationally retarded by observation of their behavior.<sup>1</sup> The lack of adequate follow-up prevented the placement of a description of that study in this paper.

The rating scale that was discussed in detail appeared to be both predictive and gave the examiners a good behavioral picture of the children. Also the results of the follow-up linked specific behaviors to future academic difficulties. The behaviors in the scale were specific enough that remediations could be planned by examining a child's protocol. This instrument appeared to meet both the predictive and planning criteria of a good test being especially predictive of the most seriously disabled.

Test Name: Teacher Rating Scale (TRS)

Author: John R. Bolig and Gerald O. Flecher

Purpose: To determine if kindergarten teachers could predict first grade success better than the Metropolitan Readiness Test.

Test Format: The classroom teachers rated the children in the same categories as found in the Metropolitan Readiness Test (MRT) by evaluating the child according to

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<sup>1</sup>Barbara K. Keogh, Ph.D., Cheryl Tchin, M.A., and Adele Windeguth-Behn, M.A. "Teachers' Perceptions of Educationally High Risk Children," Journal of Learning Disabilities 7 (June-July 1974):371-372.

a written statement for each skill. For example: Copying--  
The child has the ability to visualize sizes, shapes, and  
forms and to reproduce them appropriately. The categories  
measured were: Verbal Concepts, Visual Perception, Lis-  
tening, Alphabet, Numbers and Copying.

Scoring: For each skill the child was rated as:  
(1) almost never; (2) seldom; (3) sometimes; (4) frequently;  
and, (5) almost always.

Follow-up: In April of 1968, twenty kindergarten  
teachers used the TRS prior to the administration of the  
MRT. The following year, thirty-six first grade teachers  
gave the same students the Stanford Achievement Test (SAT)  
and the TRS. The results were as follows:

1. The MRT predicted the SAT scores better than  
the TRS.
2. The MRT predicted the first grade TRS scores  
better than the kindergarten TRS score.  
However, the difference between the kinder-  
garten TRS scores and the MRT scores was not  
significant.
3. The TRS predicted success for the girls better  
than it did for the boys.<sup>1</sup>

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<sup>1</sup>John R. Bolig and Gerald O. Fletcher, "The MRT versus  
Ratings of Kindergarten Teachers as Predictors of Success  
in First Grade," Educational Leadership 30 (April 1973):  
638-640.

Critique: The research concluded that the TRS was not as predictive as the MRT and that the TRS appeared to be biased in favor of the girls.<sup>1</sup> The restatement of MRT subtests into observable behaviors, while giving the examiner more information about the various skills being tested on the MRT, did not improve the predictive value of the regular format.

Test Name: Student Rating Scale (SRS)

Author: Seymore Feshback and Howard Adelman

Purpose: To develop a rating scale that could be used as a predictive screening instrument.

Test Format: The SRS consists of items dealing with the child's cognitive, affective, and social functioning in the classroom. The scale is broken down into the following factors.

1. Impulse Control
2. Language Development
3. Perceptual Development
4. Recall
5. Perceptual-Motor

Scoring: The teachers score each item on a one to five scale with the lower scores indicating deficiencies.

Follow-up: In the spring of their kindergarten year, 587 children were given the Wechsler Preschool and Primary Scale

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<sup>1</sup>Ibid., p. 640.



of Intelligence (WPPSI), the Otis Lennon Group Intelligence Test (Otis), and the Predictive Index of Reading Failure (de Hirsh). The classroom teachers filled out a SRS and a Kohn Social Competence Scale (Kohn) on each child. At the end of the first grade, 433 of the original group of children were given the Cooperative Primary and the Gates-Mac Ginitie Test along with another administration of the SRS.<sup>1</sup> The results of the testing were then compiled on the two following tables, Table 1 and Table 2.

Critique: The figures on Table 1 indicate a fairly good correlation among the various factors in the SRS. However, Table 2 does not indicate a good correlation between the SRS and the two reading tests, with the highest correlations being at .60 for both the Z-score of Factor III and the total SRS Z-score in correlation with the Gates raw score. The SRS did correlate better though with the two reading tests than any of the other measures used. More testing and follow-up must be done before the predictive accuracy of the SRS can be proven. An improved predictive SRS would be welcome since the format of the SRS, by being broken down into the various factors, could give good information as to which behaviors are affecting the child's learning.

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<sup>1</sup>Seymore Feshback, Ph.D., Howard Adelman, Ph.D., and Williamson W. Fuller, "Early Identification of Children with High Risk of Reading Failure," Journal of Learning Disabilities 7 (December 1974):640-644.

TABLE 1  
 INTERCORRELATIONS OF YEAR I KINDERGARTEN VARIABLES<sup>1</sup>  
 (N=587)

|  | 2    | 3    | 4    | 5    | 6    | 7   | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
|--|------|------|------|------|------|-----|------|------|------|------|------|------|------|------|------|
| 1. Sex   | -.10 | -.04 | .01  | -.02 | .04  | .09 | -.04 | .13  | .25  | .27  | .13  | .15  | .16  | .23  | .24  |
| 2. Age   |      | -.21 | -.20 | -.24 | -.14 | .15 | -.20 | .11  | -.09 | -.05 | -.08 | -.03 | -.04 | -.02 | -.05 |
| 3. Verbal IQ (WIPPSI)                          |      |      | .49  | .87  | .68  | .14 | -.23 | .27  | .01  | .28  | .43  | .44  | .36  | .32  | .41  |
| 4. Perf. IQ (WIPPSI)                           |      |      |      | .86  | .53  | .40 | -.42 | .29  | .10  | .30  | .37  | .37  | .36  | .40  | .40  |
| 5. Full Scale IQ (WIPPSI)                      |      |      |      |      | .70  | .46 | -.38 | .32  | -.06 | .33  | .47  | .47  | .42  | .42  | .47  |
| 6. Otis IQ                                     |      |      |      |      |      | .51 | -.31 | .34  | .16  | .42  | .47  | .50  | .46  | .44  | .52  |
| 7. de Hirsch                                   |      |      |      |      |      |     | -.43 | .31  | .19  | .42  | .44  | .48  | .43  | .46  | .51  |
| 8. Koppitz Bender Error Score                  |      |      |      |      |      |     |      | -.18 | .06  | -.27 | -.27 | -.30 | -.29 | -.38 | -.34 |
| 9. Kohn Factor I (Interest-Withdrawal)         |      |      |      |      |      |     |      |      | .62  | .48  | .51  | .40  | .44  | .35  | .54  |
| 10. Kohn Factor II (Cooperation-Defiance)      |      |      |      |      |      |     |      |      |      | .54  | .20  | .19  | .27  | .23  | .41  |
| 11. SRS Factor I (Impulse Control)             |      |      |      |      |      |     |      |      |      |      | .58  | .61  | .71  | .62  | .90  |
| 12. SRS Factor II (Language Development)       |      |      |      |      |      |     |      |      |      |      |      | .69  | .66  | .57  | .79  |
| 13. SRS Factor III (Perceptual Discrimination) |      |      |      |      |      |     |      |      |      |      |      |      | .73  | .68  | .82  |
| 14. SRS Factor IV (Recall)                     |      |      |      |      |      |     |      |      |      |      |      |      |      | .64  | .85  |
| 15. SRS Factor V (Perceptual-Motor)            |      |      |      |      |      |     |      |      |      |      |      |      |      |      | .77  |
| 16. SRS Total                                  |      |      |      |      |      |     |      |      |      |      |      |      |      |      |      |

r .05=.09  
 r .01=.12

<sup>1</sup>Seymore Feshback, Ph.D., Howard Adelman, Ph.D., and Williamson W. Fuller, "Early Identification of Children with High Risk of Reading Failure," Journal of Learning Disabilities 7 (December 1974):642, table 1. 61

TABLE 2  
 CORRELATION OF MAJOR KINDERGARTEN VARIABLES WITH FIRST  
 READING TEST SCORES FOR YEAR I SAMPLE<sup>1</sup>  
 (N=433)

|                                 | Cooperative<br>Primary Test |                    | Gates<br>MacGinitie Test |                    |
|---------------------------------|-----------------------------|--------------------|--------------------------|--------------------|
|                                 | Raw<br>Score                | Grade<br>Placement | Raw<br>Score             | Grade<br>Placement |
| Sex                             | .17                         | .15                | .23                      | .23                |
| Age                             | .11                         | .11                | .05                      | .07                |
| WPPSI Verbal IQ                 | .40                         | .40                | .44                      | .43                |
| WPPSI Perf. IQ                  | .29                         | .26                | .38                      | .37                |
| WPPSI Full Scale IQ             | .39                         | .37                | .47                      | .46                |
| Otis IQ                         | .45                         | .42                | .50                      | .47                |
| de Hirsch                       | .47                         | .44                | .53                      | .52                |
| Koppitz Bender<br>Error Score   | -.29                        | -.26               | -.33                     | -.33               |
| Kohn Factor I<br>(Interest)     | .28                         | .26                | .41                      | .39                |
| Kohn Factor II<br>(Cooperation) | .12                         | .13                | .23                      | .21                |
| SRS Factor I                    | .32                         | .30                | .44                      | .42                |
| SRS Z-Score                     | .37                         | .35                | .47                      | .45                |
| SRS Factor II                   | .35                         | .32                | .42                      | .45                |
| SRS Z-Score                     | .41                         | .38                | .50                      | .46                |
| SRS Factor III                  | .43                         | .39                | .55                      | .52                |
| SRS Z-Score                     | .51                         | .48                | .60                      | .57                |
| SRS Factor IV                   | .31                         | .28                | .42                      | .40                |
| SRS Z-Score                     | .41                         | .39                | .52                      | .49                |
| SRS Factor V                    | .35                         | .31                | .41                      | .41                |
| SRS Z-Score                     | .45                         | .42                | .50                      | .48                |
| SRS Total                       | .41                         | .39                | .53                      | .51                |
| SRS Z-Score                     | .50                         | .47                | .60                      | .57                |

Z-Scores are based on within-class mean and s.d.

$r_{.05} = .10$

$r_{.01} = .13$

<sup>1</sup>Seymore Feshback, Ph.D., Howard Adelman, Ph.D., and Williamson W. Fuller, "Early Identification of Children with High Risk of Reading Failure," Journal of Learning Disabilities 7 (December 1974):643, table 2.

Standardized Tests

Test Name: Illinois Test of Psycholinguistic  
Abilities (ITPA)

Author: Samuel Kirk, James McCarthy, and Winifred  
Kirk

Purpose: To describe an operational method of determining developmental discrepancies in preschool children using the ITPA average deviation score.<sup>1</sup>

Test Format: A standardized test divided into the following visual and auditory language areas:

1. Auditory Reception
2. Auditory Association
3. Auditory Memory
4. Visual Reception
5. Visual Association
6. Visual Memory
7. Motoric Expression
8. Grammatic Closure
9. Visual Closure
10. Verbal Expression

Scoring: An average deviation for each child was determined by summing each deviation from the child's mean

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<sup>1</sup>Samuel A. Kirk, Ph.D., and John Elkins, Ph.D., "Identifying Developmental Discrepancies at the Preschool Level," Journal of Learning Disabilities 8 (August-September 1975):417.

scaled score on each subtest, disregarding the sign, and dividing by ten. An average deviation of 6.0 and above would be considered an indication of a learning disability.

Follow-up: Of the 110 children in a Head Start program aged 3.6 to 6.1 who were given the ITPA, twenty-two had an average deviation score of 6.0 and above. It was determined that one of the children with a score of above 6.0 had special learning abilities and that two of the eighty-eight with a score of below 6.0 were later diagnosed as learning disabled.<sup>1</sup>

Critique: The purpose for calculating an average deviation score seems limited to being a fast method for determining whether or not a child is learning disabled. Since the average deviation score does not correctly identify all of the children and more importantly is of no help in determining specific strengths and weaknesses, its usefulness appears to be very questionable. Scoring the ITPA in the regular manner, however, not only helps to diagnose a learning problem but also gives information as to the areas of strength and weakness. Scoring the ITPA in the usual manner, therefore, seems to be more meaningful as a diagnostic tool than the use of the average deviation score.

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<sup>1</sup>Ibid., pp. 417-419.

Test Name: Vane Kindergarten Test (VKT)

Author: J. R. Vane

Purpose: To assess the intellectual and academic potential and behavioral adjustment of young children.<sup>1</sup>

Test Format: A standardized readiness test that is divided into three subtests.

1. Perceptual Motor (PM)--Child draws three boxes, three crosses, and three hexagons;
2. Vocabulary--Child defines eleven orally presented words;
3. Man--Child draws a man.

Scoring: Not explained.

Follow-up: The VKT was administered to 213 kindergarten age children. One year later, 168 of the original 213 were given the Stanford Achievement Test, Primary Battery 1 (SAT). While the scores achieved on the SAT correlated significantly at the .01 level, the three subtests of the VKT correlated at (R) .52, with total achievement accounting for only about 25 percent of the variance. There was little difference between the highest and lowest scores obtained on the VKT.

Critique: The authors of this follow-up were disturbed by the small variance, stating that although the

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<sup>1</sup>Dorothy H. Eichorn, "Vane Kindergarten Test," Tests and Reviews: Intelligence-Individual in The Seventh Mental Measurement Yearbook, Vol. 1 (Highland Park, New York: The Gryphon Press, 1972), p. 773.

scores on the VKT taken as a group correlated well with the SAT, individual children with learning problems were not identified by the VKT. Another concern was that when given to children six and one-half and older, the VKT lost discriminatory power. Finally, above average children tended to ceiling out on the VKT, not giving a good picture of their true potential.<sup>1</sup> Another source expressed basically the same concerns as the authors of the follow-up.<sup>2</sup>

The VKT then appears to have questionable predictive value and almost no value in terms of assessing learning style or possible areas of strength or weakness. The VKT does not appear to meet either of the two criteria necessary for its use as a screening instrument.

Test Name: The Johnson-Kennedy Screening Readiness Test.

Author: Rosalie Johnson and Rose Kennedy

Purpose: To assist first grade teachers in the early identification of existing learning difficulties.

Test Format: Group test of perceptual motor and cognitive skills using the following format:

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<sup>1</sup>Paul A. McKnab, M.S. and Marvin J. Fine, "The Vane Kindergarten Test as a Predictor of First Grade Achievement," Journal of Learning Disabilities 5 (October 1972):503-505.

<sup>2</sup>Eichorn, "Vane Kindergarten Test," pp. 773-776.

| <u>Subtest</u>                | <u>Physical Description</u>  | <u>Task Description</u>  | <u>Skills Measured</u>   |
|-------------------------------|--|--|--|
| I. Number Concepts            |  |  |  |
| A. Counting Objects           | Series of ten pictures and ten numbers arranged vertically.  | Child counts the number of objects in a box and draws a line to the correct numeral. | Counting, recognizing sets of objects, quantitative thinking.  |
| B. Writing Numerals           | Seven rows of objects to be counted  | Child counts the number of objects and writes the numeral in a box.                  | Counting, eye-hand coordination, numerical comprehension.  |
| II. Visual Motor Coordination | A series of twelve pairs of boxes with the first box containing a simple design and the second box being blank | Child is asked to reproduce design in the first box                                  | Visual-motor coordination, kinesthetic ability, grasp of form consistency, perception of two dimensional space |
| III. Discrimination of Form   | Series of six words arranged horizontally on one page, series of six words on the next page.                   | Child marks the picture or word that is different from the others.                   | Visual perception of left to right sequence, ability to perceive configuration differences.                    |



| <u>Subtest</u>                | <u>Physical Description</u>  | <u>Task Description</u>   | <u>Skills Measured</u>  |
|-------------------------------|--|---|---|
| IV. Symbol Recognition        | Series of nine alphabetical symbols placed in rows.  | Child identifies similar letters by marking them with an "X".                 | Ability to distinguish similar forms, left to right eye movement, scanning.   |
| V. Spacial Relations          | Eight pairs of two squares containing the same number of dots. The first square has a line drawn through the dots. | Child reproduces the first square "model" by drawing it in the second square. | Visual-motor coordination, form perception, position in space laterality.   |
| VI. Position in Space         | Series of seven horizontally arranged pictures.  | Child identifies the picture that is different.                               | Visual perception and discrimination, visual scanning, recall, sense of visual directionality.  |
| VII. Perceiving Relationships | Five rows of four pictures each.   | Child marks the picture that does not belong.                                 | Visual perception, and discrimination, visual scanning, recall, concept generalization and grasping of abstract similarities among objects. |

| <u>Subtest</u>                | <u>Physical Description</u>                               | <u>Task Description</u>   | <u>Skills Measured</u>  |
|-------------------------------|---|---|---|
| VIII. Auditory Discrimination | Five rows of three pictures and five rows of three words. | As the tester names the pictures or words, the child marks the two with the same beginning sound. | Auditory perception, discrimination, and recall.  |
| IX. Color Recognition         | Six numbered circles in boxes                             | Child colors the circles according to the directions of the tester.                               | Color perception, identification, and recognition, eye-hand coordination.                                     |
| X. Draw-a-Person              | One 8 $\frac{1}{2}$ " x 9 $\frac{1}{2}$ " piece of paper. | Child is asked to draw a person.  | Body image and social awareness, eye-hand coordination, general intellectual development, social sensitivity. |

Scoring: Not explained.

Follow-up: During the first month of school the test was administered to 375 beginning first graders. At the end of the school year the teachers rated the students' academic performance as satisfactory (69 percent) or unsatisfactory (31 percent). The screening test was able to detect a significant number ( $r=.65$ ;  $p < .001$ ) of the children who in the teachers' estimation were having difficulty in school.

The teachers were not aware of the children's scores on the Johnson-Kennedy when they rated them.<sup>1</sup>

Critique: The Johnson-Kennedy has the potential to meet both of the criteria of a good testing instrument. The test format, with its excellent explanation of the skills involved in the various subtests, can be used to help formulate educational planning for a child. Its predictive value, however, could be better verified if the Johnson-Kennedy results were checked against the results on other achievement tests, rather than just using the teachers' estimation of performance. While the educational information that can be gathered from this test seems adequate, more research seems necessary to verify its predictive value.

Test Name: Lorge-Thorndike Intelligence Test (LTIT)

Author: Irving Lorge and Robert L. Thorndike

Purpose: To predict future academic performance.

Test Format: A group intelligence test which on the kindergarten level nonverbally samples the following behaviors:

1. Dealing with abstract and general concepts.
2. Interpreting and using symbols.

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<sup>1</sup>Rosalie C. Johnson, Frank C. Seitz, and Rose K. Kennedy, "Detection of Learning Disabilities in First Grade: Preliminary Analyses of the Johnson-Kennedy Screening Readiness Test," Psychological Reports 33 (August 1973):219-223.

3. Dealing with relationships among concepts and symbols.
4. Flexibility in the organization of concepts and symbols.
5. Utilizing one's experience in new patterns.
6. Utilizing "power" rather than speech in working with abstract materials.

Scoring: Not explained.

Follow-up: The LTIT was administered to 118 pupils enrolled in four suburban schools. The schools were classified according to scores on the California Test of Mental Maturity as being "high average" and "low ability". The LTIT was given to the children in January 1968, when the children were in kindergarten. The following January, 102 of the original group were given the Word Knowledge (WK) and Arithmetic Concepts and Skills (AR) subtests of the Metropolitan Achievement Tests (MAT). Also the first grade teachers rated each child's performance in reading and arithmetic (A-5, B-4, C-3, D-2, and U-1) and reported each child's reading level (Primer-5, Pre-primer three-4, Pre-primer two-3, Pre-primer one-2, and Readiness-1). Finally data was compiled concerning the father's occupation for each student; the schools' rating (High, Average, and Low); the sex of each subject; and the age of each subject. MAT

standard scores and LTIT deviation IQ scores were used in the analysis.<sup>1</sup> The following table showed how each factor correlated.

Critique: Table 3 indicated a good correlation between the MAT scores and the teacher's grades with a mild correlation between the LTIT and the other two measures. While the LTIT correlated somewhat better with teachers estimation of performance than with the MAT scores, the LTIT's predictive accuracy was not established by this research. While the LTIT format can give some information as to how a child approaches various tasks, it was only mildly predictive of a child's future academic performance.

#### Test Batteries

The research discussed so far concentrated on one test being used as a criterion in each study. Since the next three instruments were test batteries, the format of the outline was changed by including the test name, authors, and test format under one heading. Also, since two of the three batteries included parts of the Predictive Index of Reading Failure, those subtests were described below under one heading, using only the subtest names when the individual research was discussed.

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<sup>1</sup>Glen E. Mendels, "The Predictive Validity of the Lorge-Thorndike Intelligence Test at the Kindergarten Level," Journal of Educational Research 66 (March 1973):320.

TABLE 3  
 LORGE-THORNDIKE CORRELATIONS<sup>1</sup>  
 (N=79)\*

|                     | LTIT | MAT<br>WK | AR   | TEACHERS'<br>READ. | GRADE<br>ARITH | READ<br>LEVEL | SCH<br>ABIL | AGE  | SEX  | FO   |
|---------------------|------|-----------|------|--------------------|----------------|---------------|-------------|------|------|------|
| LTIT                | 1.00 | .46       | .56  | .54                | .62            | .58           | .36         | -.30 | -.08 | .39  |
| MAT WK              |      | 1.00      | .69  | .76                | .68            | .53           | .47         | -.06 | .09  | .40  |
| MAT AR              |      |           | 1.00 | .72                | .73            | .56           | .57         | -.08 | -.04 | .54  |
| READ GR             |      |           |      | 1.00               | .86            | .80           | .46         | -.16 | .21  | .42  |
| ARITH GR            |      |           |      |                    | 1.00           | .77           | .43         | -.17 | -.03 | .45  |
| READ LEVEL          |      |           |      |                    |                | 1.00          | .42         | -.28 | .15  | .32  |
| SCHOOL ABILITY      |      |           |      |                    |                |               | 1.00        | -.59 | .06  | .60  |
| AGE                 |      |           |      |                    |                |               |             | 1.00 | .01  | -.26 |
| SEX                 |      |           |      |                    |                |               |             |      | 1.00 | -.06 |
| FATHER'S OCCUPATION |      |           |      |                    |                |               |             |      |      | 1.00 |

\* Value of r significant at  $p < .05$  is .23.

Value of r significant at  $p < .01$  is .30.

<sup>1</sup>Glen E. Mendels, "The Predictive Validity of the Lorge-Thorndike Intelligence Test at the Kindergarten Level," Journal of Educational Research 66 (March 1973):321, table 1.

Predictive Index of Reading Failure Subtest Descriptions:

1. Pencil Use--Measures the child's ability to grasp and use a pencil. Critical level-0.
2. Bender Visuo-Motor Gestalt Test--Measures the child's ability to reproduce six (A, 1, 2, 4, 6, and 8) of the nine designs on the Bender-Gestalt Test for Young Children. Critical level-1.
3. Wepman Auditory Discrimination Test--Measures the child's ability to distinguish whether or not a pair of auditorally presented words are the same or different. Twenty odd-numbered word-pairs from the original test are administered. Critical level-1.
4. Number of Words Used in a Story--Counts the number of words a child uses in telling the story of The Three Bears. Critical level-226.
5. Categories--Measures the child's ability to produce class names for three groups of words: colors, boys and food. Critical level-0.
6. Horst Reversals--Measures the child's ability to match two and three letter combinations to a model. Critical level-4.
7. Gates Word-Matching--Measures child's ability to find and match the two words in a group of words that are alike. Critical level-3.
8. Word Recognition I and II--Measures direct learning by teaching two words to a child and

then asking him to find them in a group of words. Critical level-0.

9. Word Reproduction--Measures the child's ability to write the words taught in Word Recognition I and II. Critical level-3.

Scoring: Child has to achieve at least the critical score level to pass and score 1 point. Children who pass none or one test at the critical level are considered failures.<sup>1</sup>

Tests, Authors and Formats:

1. Slosson Intelligence Test (Slosson)--Richard L. Slosson assesses mathematical reasoning, vocabulary, auditory memory, and information.<sup>2</sup>
2. Illinois Test of Psycholinguistic Abilities (ITPA)--Samuel Kirk, James McCarthy, and Winifred Kirk--Two subtests were used:
  - a. Auditory Sequential Memory--Child repeats a series of numbers;
  - b. Visual Sequential Memory--Child reproduces a visually presented pattern.
3. Tapped Patterns (TP)--Katrina de Hirsh, Jeannette Jefferson Jansky, and William Langford--Assesses

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<sup>1</sup>Katrina de Hirsh, Jeannette Jefferson Jansky, and William S. Langford, Predicting Reading Failure (New York: Harper and Row, 1966), pp. 107-113.

<sup>2</sup>Jane V. Hunt, "Slosson Intelligence Test," Tests and Reviews: Intelligence-Individual in The Seventh Mental Measurement Yearbook, Vol. 1 (Highland Park, New York: The Gryphon Press, 1972), p. 776.



auditory-motor integration by asking the child to repeat an auditorally presented pattern of finger tapping.

4. Language Comprehension (LC)--Same as above--  
Estimates oral comprehension by asking the child questions about a story that is read to him.<sup>1</sup>
5. From the Predictive Index of Reading Failure--  
Same as above--
  - a. Horst Reversals (Horst)
  - b. Word Recognition I and II (WR I and II)
  - c. Wepman Auditory Discrimination Test (Wepman)
  - d. Bender Visuo-Motor Gestalt (Bender)

Purpose: To determine how well kindergarten testing of perceptual-cognition can predict first grade reading achievement.

Follow-up: The battery was given to 120 kindergarten children with a mean age of 4.2. At the end of first grade one hundred of the original group were given the Gates-MacGinitie Reading Test. The results of the testing were as follows:

1. The Slosson IQ constituted the most effective single predictor of first grade reading achievement.

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<sup>1</sup>deHirsh, Predicting Reading Failure, pp. 18-19.

2. The higher the number of errors on the TP, Bender, WR I, and the LC, the lower the score on the Gates Vocabulary subtest.
3. The children scoring the highest on the Gates Vocabulary not only had a high Slosson IQ but also were relatively free from deficiencies in:
  - a. Auditory-motor integration
  - b. Visual-motor integration
  - c. Direct word learning
  - d. Oral comprehension
4. The most significant predictor of reading difficulties was in the area of visual-motor integration as tested on the Bender.
5. Success in reading comprehension seemed dependent upon intact visual-motor integration, general intelligence, visual sequential memory, sex, and visual discrimination.

The necessity of intact visual processing for both vocabulary development and reading comprehension became apparent when compiling the follow-up data.<sup>1</sup>

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<sup>1</sup>Jane D. Wallbrown, et al., "The Prediction of First Grade Reading Achievement with Selected Perceptual-Cognitive Tests," Psychology in the Schools 12 (April 1975): 141-146.

Critique: The results of the follow-up indicated that the Slosson was a good predictor of reading achievement and that visual processing appeared to be an important component of success in reading. This battery seemed to be an excellent diagnostic tool not only for its predictive value but also for its scope in measuring perceptual skills. The results of this battery could be used to formulate educational planning for the child.

Test Name: Modified Predictive Index (MPI)

Tests, Authors, and Formats:

1. From the Predictive Index of Reading Failure--  
 Katrina de Hirsh, Jeannette Jefferson Jansky,  
 and William S. Langford
  - a. Pencil Use
  - b. Bender Visuo-Motor Gestalt
  - c. Wepman Auditory Discrimination Test
  - d. Number of Words Used in a Story
  - e. Categories
  - f. Horst-Reversals
  - g. Gates Word-Matching
  - h. Word Recognition I and II
  - i. Word Reproduction

Scoring: By critical levels.

2. The Draw-A-Person Test--L. C. Eaves, D. C. Kendall, and J. U. Crichton--Child draws a person.

Scoring: The Goodenough-Harris System.

3. Name Printing--Same as above--Child prints his name.

Scoring: One point each for clear printing, letters straight on the line, correct letters, correct spelling, and letter proportion.

Purpose: To detect children on the kindergarten level who may have minimal brain dysfunction and therefore may experience problems in reading.

Follow-up: When the MPI was administered to 228 kindergarteners, forty-nine of the children scored failure. Twenty-five of the "failure" group were then matched by age, sex, and, when possible, by school with twenty-five children who passed the battery. All fifty children were then given neurological and psychological examinations. In June, the MPI was re-administered to forty-nine of the fifty children along with the following tests:

1. A teacher checklist of the child's ability.
2. The Vancouver School's Kindergarten Developmental Record.
3. The Metropolitan Readiness Test (MRT).
4. The Wechsler Preschool and Primary Scale of Intelligence (WPPSI).

The neurological and psychological testing confirmed that 44 percent (11) of the twenty-five failures had definite signs of minimal brain dysfunction (MBD).

Another eleven of the twenty-five failures were diagnosed as immatures or children with symptoms of MBD who were likely to improve over the months. By the second testing on the MPI five of the immatures received passing scores. Both those children with signs of MBD and the immatures were more accurately predicted by the MPI than by the other instruments. There were three false positives (children who scored failure but evidenced no MBD) and one false negative (a control child with definite MBD).<sup>1</sup>

At the end of second grade, the fifty children were further examined by using the following instruments:

1. A teacher checklist of ability.
2. The Stanford Achievement Test.
3. The Cooperative Primary.
4. Information from parents as to academic ability.

The two-year follow-up indicated that:

1. The MPI was more predictive when administered in June than in the preceding October.
2. Individual subtest scores were more predictive than the composite MPI
3. The Horst Reversals and Pencil Use subtests when given in June, correlated the Cooperative Primary Reading and Word Analysis.

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<sup>1</sup>L. C. Eaves, M.S., D. C. Kendall, Ph.D., and J. U. Crichton, M.B., "The Early Detection of Minimal Brain Dysfunction," Journal of Learning Disabilities 5 (October 1972): 455-461.

4. The Horst Reversals (June) correctly classified 79 percent of the second grade teachers' estimates of reading.
5. The Pencil Use (June), correctly classified 71 percent of the second grade teachers' estimates of handwriting ability.
6. The Categories (June) correctly classified 95 percent of the second grade teachers' estimates of readiness for third grade reading.
7. The differences between the three groups (failures, immatures, and normals) were becoming less detectable as the students became older.
8. Of the entire group who failed the MPI only forty-one percent were promoted to third grade.
9. Of the entire group who passed the MPI, 91.5 percent were promoted to third grade.

The results indicated that when given in June of a child's kindergarten year, the MPI did predict with some confidence the child's performance in first and second grade. Also, the composite score on the MPI was less predictive than specific subtest scores (Horst, Pencil Use, and Categories). Finally, the differences among the groups became less distinct as the children became older.<sup>1</sup>

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<sup>1</sup>L. C. Eaves, M.S., D. C. Kendall, Ph.D., and J. U. Crichton, M.B., "The Early Identification of Learning Disabilities: A Follow-Up Study," Journal of Learning Disabilities 7 (December 1974):634-636.

Critique: This research basically investigated the predictive value of the Predictive Index of Reading Failure, since the only modification on the original test was the addition of the Draw-A-Person and Name Printing subtests. It appeared that the Pencil Use, Horst, and Categories subtests correctly identified the greatest number of children with reading and handwriting problems. By investigating the individual subtests of the MPI, this research identified the specific skills of visual discrimination, language comprehension, and graphomotoric ability as being good predictors in kindergarten of future reading and handwriting performance. Also, the research indicated that testing kindergarten children in June, after exposure to school, was more valid than testing at the beginning of kindergarten.

Tests, Authors, and Formats:

1. Bean Bucket Game (BB)--Ken Lessler--A measure of social maturity.
2. Metropolitan Readiness Tests (MET)--Gertrude H. Hildreth, Nellie L. Griffiths, and Mary E. McBauvran
  - a. Word Meaning
  - b. Listening
  - c. Matching
  - d. Alphabet
  - e. Numbers
  - f. Copying

3. Lee-Clark Reading Readiness Tests (LC)--J.  
Murray Lee and Willis W. Clark
  - a. Letter Symbols
  - b. Concepts
  - c. Word Symbols
4. California Test of Mental Maturity (CTMM)--  
Elizabeth Sullivan, Willis W. Clark, and  
Ernest W. Tiegs
  - a. Logical Reasoning
  - b. Spacial Relations
  - c. Numerical Reasoning
  - d. Verbal Concepts
5. Peabody Picture Vocabulary Test (PPVT)--Lloyd  
M. Dunn--A test of language comprehension.  
Child must select a picture from a group of  
pictures that best describes a spoken stimulus  
word.
6. Bender-Gestalt (Bender), Laretta Bender--Measures  
visual-motor integration. Child reproduces a  
series of geometric shapes.

Scoring: The total score on each test was used.

Purpose: To predict first and second grade achievement by evaluating standardized test scores.

Follow-up: The original sample included 293 children from nine rural school districts in North Carolina.



Before entering first grade, 101 of the children in the sample were given the individually administered tests (PPVT, Bender and BB). Early in first grade, the remaining tests were administered to all 293 of the children. The California Achievement Test (CAT) and a teacher rating of overall performance (TR) was given to all of the children at the end of first and second grade.

Since the CAT and TR scores correlated highly, they were combined into one score. This was done by placing each score into one of two categories--no learning problem (NLP) and learning problem (LP). A CAT score of 134 or more was considered NLP while a score below 134 was considered LP. On the TR, the ratings of "average or better" and "marginal" were classified as NLP while "clearly immature" was considered LP. A child had to be rated as NLP by both tests to remain in that category.<sup>1</sup> The following tables show the correlations between the tests in the battery and the first grade CAT, TR scores.

At the end of second grade, 90 percent of the children predicted LP by the MET (total score below 36) were also classified LP by the CAT and TR.<sup>2</sup>

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<sup>1</sup>Ken Lessler, Ph.D. and Judith S. Bridges, Ph.D., "The Prediction of Learning Problems in a Rural Setting: Can We Improve on Readiness Tests," Journal of Learning Disabilities 6 (February 1973):91-92.

<sup>2</sup>Ibid., pp. 93-94.

TABLE 4  
 CORRELATIONS BETWEEN PREDICTORS AND CRITERIA  
 OF FIRST GRADE PERFORMANCE<sup>1</sup>

| PREDICTORS | N   | CAT  | CRITERIA          |                       |
|------------|-----|------|-------------------|-----------------------|
|            |     |      | Teacher<br>Rating | Combined<br>Criterion |
| LC         | 293 | .74  | .63               | .64                   |
| MET        | 293 | .76  | .58               | .70                   |
| CTMM       | 293 | .73  | .64               | .59                   |
| PPVT       | 101 | .62  | .50               | .54                   |
| Bender*    | 101 | -.46 | -.30              | -.35                  |
| BB         | 101 | .56  | .33               | .55                   |

\* Low score indicates good performance.

<sup>1</sup>Ibid., p. 92, table 1.

TABLE 5  
 FIRST ORDER AND MULTIPLE CORRELATIONS BETWEEN  
 PREDICTORS AND CRITERION OF FIRST GRADE  
 PERFORMANCE<sup>1</sup>

| PREDICTORS*            | r<br>(N=101) | Percent Variance<br>Accounted by for r |
|------------------------|--------------|--|
| <u>Analysis I</u>      |              |  |
| MET alone              | .74          | 55                                     |
| MET, BB                | .76          | 58                                     |
| MET, BB, PPVT          | .77          | 59                                     |
| MET, BB, PPVT, Bender  | .77          | 59                                     |
| <u>Analysis II</u>     |              |  |
| LC alone               | .65          | 42                                     |
| LC, BB                 | .70          | 49                                     |
| LC, BB, PPVT           | .73          | 53                                     |
| LC, BB, PPVT, Bender   | .73          | 53                                     |
| <u>Analysis III</u>    |              |  |
| CTMM alone             | .56          | 31                                     |
| CTMM, BB               | .66          | 44                                     |
| CTMM, BB, PPVT         | .69          | 48                                     |
| CTMM, BB, PPVT, Bender | .70          | 49                                     |

\* In order of their contribution to the regression equation.

<sup>1</sup>Ibid., p. 93, table 2.

Critique: A variety of information came out of this research concerning the predictive value of the various tests. First, the MET was outstanding as an excellent predictor of both first and second grade achievement. Second, the group tests as a whole were more predictive than the individual tests. Third, a test battery that consisted of the MET, BB, PPVT, and the Bender was more predictive than any other one test or combination of tests. However, since this research used total and not subtest scores, it did not investigate the relationship between the individual skills measured on the tests and the children's performance. So while the MET was identified as an excellent predictive tool, the research did not show how to use the MET to plan specific remediation for those children designated as having learning problems.

#### Summary

This section of the paper evaluated twelve pre-school and kindergarten screening devices on the basis of their ability to predict future academic performance and to give information that could be used to plan an educational program. When the research on these devices was compared, three main points became apparent. First, a comparison of the devices revealed that only four of the twelve instruments met both the predictive and planning criteria. Second, results of the research on those

four devices indicated that deficits in general intelligence, visual processing, language ability, and graphomotoric skills, if present at the end of kindergarten, had a significant negative affect on the child's achievement in first grade. Finally, although the research did not investigate the specific skills tested on the instrument, the Metropolitan Readiness Test appeared to be one of the best predictors available for future academic performance.

The final chapter of this study discusses the results of the comparisons in greater detail.

## CHAPTER III

### SUMMARY AND CONCLUSIONS

This study of twelve preschool and kindergarten screening devices reviewed in the literature between January 1972 and June 1976, evaluated the tests not only on their ability to predict future academic problems but also on the amount of information that they could give concerning specific skill deficits. This second criterion was considered important for planning teaching strategies to help remediate the academic difficulties. Only the following four devices met both criteria:

An unnamed test for developmental abnormalities by Satz and Friel not only identified four subtests as highly predictive of learning problems but also linked difficulties in perceptual-motor integration with learning problems.<sup>1</sup> An unnamed rating scale by Cowgill, Friedman and Shapiro identified specific behaviors, observable by kindergarten teachers, that distinguished learning disabled children from normal learners. These behaviors included poor attention span, difficulties with verbal directions, and

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<sup>1</sup>Satz, "Some Predictive Antecedents of Specific Learning Disability: A Preliminary Two Year Follow-Up," p. 443.

general motoric problems.<sup>1</sup> The third device was a test battery by Wallbrown et al. The authors identified the Slosson Intelligence Test and the Bender-Gestalt as two significant predictors of a reading disability, designating general intelligence and intact visual processing as the most important components of reading success.<sup>2</sup> The fourth device was the Predictive Index of Reading Failure by de Hirsh, Jansky, and Langford. In Eaves, Kendall, and Crichton's study, the Horst Reversals, Pencil Use, and Categories, subtests were identified as being the most predictive of reading and handwriting performance through second grade.<sup>3</sup> The skills tested by these subtests were visual discrimination, language comprehension, and graphomotoric ability. This study, while it used parts of the Bender-Gestalt, did not identify it as an important predictor of reading success.

Besides these four devices, another readiness instrument proved to be highly predictive, even though neither study of the instrument investigated the specific skills being tested. In both Bolig and Fletcher and in

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<sup>1</sup>Cowgill, "Predicting Learning Disabilities From Kindergarten Reports," p. 581.

<sup>2</sup>Wallbrown, "The Prediction of First Grade Reading Achievement with Selected Perceptual-Cognitive Tests," pp. 141-146.

<sup>3</sup>Eaves, "The Early Identification of Learning Disabilities: A Follow-Up Study," pp. 634-636.

Lessler and Bridges' studies, the Metropolitan Readiness Test predicted reading performance better than any other instrument used in the studies.<sup>1</sup>

An analysis of the follow-up data indicated that a good preschool or kindergarten screening device should include observations of general classroom behavior; testing of general intelligence, language comprehension, graphomotoric ability, and visual processing; and the Metropolitan Readiness Test.

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<sup>1</sup>See Bolig, "The MRT versus Ratings of Kindergarten Teachers as Predictors of Success in First Grade," pp. 638-640; and Lessler, "The Prediction of Learning Problems in a Rural Setting: Can We Improve on Readiness Tests?" pp. 92-94.



## BIBLIOGRAPHY

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### Journal Articles

- Bolig, John and Fletcher, Gerald. "The MRT versus Ratings of Kindergarten Teachers as Predictors of Success in First Grade." Educational Leadership 30 (April 1973):637-640.
- Cowgill, Mary Lu, M.A.; Friedman, Seymore, Ph.D.; and Shapiro, Rose. "Predicting Learning Disabilities From Kindergarten Reports." Journal of Learning Disabilities 6 (November 1973):577-582.
- Eaves, L. C., M.S.; Kendall, D. C., Ph.D.; and Crichton, J. U., M.B. "The Early Detection of Minimal Brain Dysfunction." Journal of Learning Disabilities 5 (October 1972):454-462.
- \_\_\_\_\_. "The Early Identification of Learning Disabilities: A Follow-Up Study." Journal of Learning Disabilities 7 (December 1974):632-638.
- Feshback, Seymore, Ph.D.; Adelman, Howard, Ph.D.; and Fuller, Williamson W. "Early Identification of Children with High Risk of Reading Failure." Journal of Learning Disabilities 7 (December 1974):639-644.
- Hoffman, Mary S. "Early Indication of Learning Problems." Academic Therapy 7 (Fall 1971):23-34.
- Johnson, Rosalie C.; Seitz, Frank C.; and Kennedy, Rose K. "Detection of Learning Difficulties in First Grade: Preliminary Analysis of the Johnson-Kennedy Screening Readiness Test." Psychological Reports 33 (August 1973):219-225.
- Keogh, Barbara K., and Becker, Laurence D. "Early Detection of Learning Problems: Questions, Cautions, and Guidelines." Exceptional Children 40 (September 1973):5-11.

- Keogh, Barbara K., Ph.D.; Tchinn, Cheryl, M.A.; and Windeguth-Behn, Adele, M.A. "Teachers' Perceptions of Educationally High Risk Children." Journal of Learning Disabilities 7 (June-July 1974):367-374.
- Kirk, Samuel A. Ph.D. and Elkins, John, Ph.D. "Identifying Developmental Discrepancies at the Preschool Level." Journal of Learning Disabilities 8 (August-September 1975):417-419.
- Lessler, Ken, Ph.D. and Bridges, Judith, Ph.D. "The Prediction of Learning Problems in a Rural Setting: Can We Improve on Readiness Tests?" Journal of Learning Disabilities 6 (February 1973):90-94.
- McKnab, Paul A., M.S. and Fine, Marvin J., Ph.D. "The Vane Kindergarten Test as a Predictor of First Grade Achievement," Journal of Learning Disabilities 5 (October 1972):503-505.
- Mendels, Glen E. "The Predictive Validity of the Lorge-Thorndike Intelligence Test at the Kindergarten Level." Journal of Educational Research 66 (March 1973):320-322.
- Mendelson, Anna and Atlas, Rusk. "Early Childhood Assessment: Paper and Pencil for Whom?" Childhood Education 49 (April 1973):357-361.
- Satz, Paul, Ph.D. and Friel, Janet, M.S. "Some Predictive Antecedents of Specific Reading Disability: A Preliminary Two Year Follow-Up." Journal of Learning Disabilities 7 (August-September 1972):437-444.
- Wallbrown, Jane D.; Engin, Ann W.; Wallbrown, Fred H.; and Blaha, John. "The Prediction of First Grade Reading Achievement with Selected Perceptual-Cognitive Tests." Psychology in the Schools 12 (April 1975):140-149.
- Wilborn, Bobbie L. and Smith, Don A. "Early Identification of Children with Learning Problems." Academic Therapy 9 (Spring 1974):363-371.

Yearbooks

Eichorn, Dorothy H. "Vane Kindergarten Test," Tests and Reviews: Intelligence-Individual in The Seventh Mental Measurement Yearbook, Vol. 1. Highland Park, New York: The Gryphon Press, 1972.

Hunt, Jane V. "The Slosson Intelligence Test." Tests and Reviews: Intelligence-Individual in The Seventh Mental Measurement Yearbook, Vol. 1. Highland Park, New York: The Gryphon Press, 1972.

Books

de Hirsh, Katrina; Jansky, Jeannette Jefferson; and Langford, William. Predicting Reading Failure. New York: Harper and Row, 1966.

Mehrens, William A. and Lehman, Irving J. Standardized Tests in Education. New York: Holt, Rinehart, Winston, 1969.

Satz, Paul, Ph.D. and Friel, Janet, M.S. "Some Predictive Antecedents of Specific Learning Disability: A Preliminary One Year Follow-Up." quoted in Paul Staz, Ph.D. and J. Ross, eds. The Disabled Learner: Early Detection and Intervention. Rotterdam: University Press, 1973, pp. 79-98.